

**ABSTRACT**

A fingerprint sensing system includes an image sensor, a rate sensor and a sensor circuit. The image sensor includes a linear array of capacitive sensors for capacitive sensing of ridge peaks and ridge valleys of a fingerprint on a swiped finger. The rate  
5 sensor senses the speed of the finger as it is swiped across the image sensor. The sensor circuit supplies image drive signals to the image sensor and detects image signals in response to the drive signals. The sensor circuit supplies rate drive signals to the rate sensor and detects rate signals in response to the rate drive signals. The sensor circuit further coordinates the image signals and the rate signals to provide a fingerprint image.  
10 The image sensor may be configured as an image pickup plate and multiple image drive plates formed on a substrate, such as a flexible printed circuit board or other flexible substrate which may conform to the shape of the finger.